



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,322	10/16/2003	Robert Urschler	62738C	8774

109 7590 06/15/2007
THE DOW CHEMICAL COMPANY
INTELLECTUAL PROPERTY SECTION,
P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

FORTUNA, JOSE A

ART UNIT	PAPER NUMBER
----------	--------------

1731

MAIL DATE	DELIVERY MODE
-----------	---------------

06/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/687,322	Applicant(s) URSCHELER ET AL.	
	Examiner José A. Fortuna	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/02/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1731

2. Claims 1-37 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10, 17-43, 45-60, 62, 64-72 and 74-82 of copending Application No. 10/257,172. The difference in scope between the claims of the copending applications is the limitation of the viscosity of the coating layers. However, applicants admit that the high solid content pigments coating composition have viscosity within the claimed range, see paragraph bridging pages 3 and 4 of the present application and therefore, the viscosity of the coating agent of the copending application is within the claimed range or at least the modification of the viscosity would have been obvious to one of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

Art Unit: 1731

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 1-19, 22-25, 29-32 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al., US Patent No. 5,789,031 in view of Clarke et al., US Patent No. 6,099,913 or Suga et al., US Patent No. 5,393,571.

Hirabayashi et al. teach a printing paper, see abstract. They also teach that the coating can be applied to one of both sides by means of an on or off machine coater, such as a curtain coater, and they also teach that the solid content of the coating color, pigments, is from about 40 to 70%, column 6, lines 13-33. Hirabayashi et al. teach in the lines above that the coating can be applied to the base paper from about 3 to 50 g/m² per side. Hirabayashi et al. also teach the use of polyvinyl alcohol as part of the coating, column 5, lines 28-38. Hirabayashi et al. teach the use the same pigments as disclosed/claimed, column 6, lines 7-12; same binders as claimed/disclosed, column 5, lines 40-52; the use of surfactants and PEO, column 4, lines 56-67; same paper or paperboard grammage as claimed, column 6, lines 22-33. Even though Hirabayashi et al. do not explicitly disclose the viscosity at the shear rate and temperature as claimed, both

Art Unit: 1731

Suga et al. and Clarke et al. teach that for multilayer curtain coatings, the viscosity of the coating composition should be high at high shear rates in order to eliminate/reduce air entrapment and puddling, Clarke et al., column 3, lines 41-50 and 60-67 and to eliminative sagging, heeling and air entrapment, Suga et al., column 2, lines 10-26, when the curtain coating is operated at high speeds. Note that both Suga et al. and Clarke et al. teach viscosity at high shear rates above 50 cps, ($50 \text{ mPa}\cdot\text{s}^{-1}$). Therefore, adjusting the viscosity to the claimed levels, i.e., using thickening, gelling agents, etc., would have been obvious to one of ordinary skill in the art in order to operate the coating process at high speeds while reducing sagging, air entrapment, heeling, and puddling. Note also that applicants admits that in general the viscosity of coating slips at high shear rate is usually greater than $50 \text{ mPa}\cdot\text{s}^{-1}$, see paragraph bridging pages 3 and 4. Note that both Suga et al. and Clarke et al. teach web/coating speeds above 300 m/min, see examples, figures and tables. Regarding claim 33, The use of synthetic pigments, such as magadiite, would have been obvious to one of ordinary skill in the art since they are commonly used in the coating industry, see for example abstract of DD 221722, cited in IDS file on December 12, 2005.

Claims 1-19, 22-25, 26, 29-33 and 34-37 are rejected under 35 U.S.C. 103(a) as obvious over Hirabayashi et al., US Patent No. 6,458,413 in view of Suga et al. or Clarke et al., both cited above.

Hirabayashi et al. teach a printing paper, see abstract. They also teach that the coating can be applied to one of both sides by means of an on or off machine coater, such as a curtain coater, and they also teach that the solid content of the coating color,

pigments, is from about 40 to 70%, paragraph bridging columns 12-13. Hirabayashi et al. teach in the lines above that the coating can be applied to the base paper from about 3 to 50 g/m² per side. Hirabayashi et al. also teach the use of polyvinyl alcohol as part of the coating, column 5, lines 28-38. Hirabayashi et al. teach high viscosity coating slips, see abstract, but they are not explicit as to the viscosity at the claimed conditions, i.e., shear rate and temperature. However, both Suga et al. and Clarke et al. teach that for multilayer curtain coatings, the viscosity of the coating composition should be high at high shear rates in order to eliminate/reduce air entrapment and puddling, Clarke et al., column 3, lines 41-50 and 60-67 and to eliminate sagging, heeling and air entrapment, Suga et al., column 2, lines 10-26, when the curtain coating is operated at high speeds. Note that both Suga et al. and Clarke et al. teach viscosity at high shear rates above 50 cps, (50 mPa.s⁻¹). Therefore, adjusting the viscosity to the claimed levels, i.e., using thickening, gelling agents, etc., would have been obvious to one of ordinary skill in the art in order to operate the coating process at high speeds while reducing sagging, air entrapment, heeling, and puddling. Note also that applicants admits that in general the viscosity of coating slips at high shear rate is usually greater than 50 mPa.s⁻¹, see paragraph bridging pages 3 and 4. Hirabayashi et al. teach also the same binders as claimed/disclosed, column 12, lines 35-53; same paper or paperboard grammage as claimed, column 8, lines 26-29. Note that both Suga et al. and Clarke et al. teach web/coating speeds above 300 m/min, see examples, figures and tables.

Regarding claim 33, the use of synthetic pigments, such as magadiite, of claim 33 would have been obvious to one of ordinary skill in the art since they are commonly used in the

Art Unit: 1731

coating industry, see for example abstract of DD 221722, cited in IDS file on December 12, 2005.

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al., US Patent No. 6,458,413 in view of Suga et al. or Clarke et al., both cited above as applied to claims 1-19, 22-25, 26, 29-33 and 34-37 above, and further in view of Mitami et al., US Patent No. 5,773,093, cited in previous office action.

Hirabayashi et al. teach a printing paper, coated with an aqueous solution of polyvinyl alcohol and with coating weight between 0.5 to 5 g/m², see abstract. They also teach that the coating can be applied to one of both sides by means of an on or off machine coater, such as a curtain coater, and they also teach that the solid content of the coating color, pigments, is from about 40 to 70%, column 12, line 58 through column 13, line 10. The calendering of the paper is disclosed in column 6, lines 34-38. As to the speed of the web at the coating, Hirabayashi et al. teach that the coating operation can be done either on or off-machine, and it is well known that the speed of the web in an on-machine coater is within the claimed range. Hirabayashi et al. are silent with regard to the specific claimed velocities. However, Mitami et al. teach a curtain coater that can be used with coating liquids at any viscosity and solid content, i.e., solid matter, and can be operated at web speed over 2000 m/min, see column 6, lines 25-51. The advantages of using such device, coater, are taught in column 3, line 55 through column 4, line 56, some of which are: minimize the quality defects due to inferior drying, web tearing, and contamination of a coating apparatus, etc. Also the coating can be done at high speed, see column 6, lines 47-51. Therefore, using the coating apparatus taught by Mitami et al. in the process taught by Hirabayashi et al. would have been obvious to one of ordinary skill in the art in order to obtain

Art Unit: 1731

the advantages discussed above, i.e., improvement of the coating operation with the advantage of running at high speed, can be used with any liquid coating independently of the viscosity and solid content.

7. Claims 1-20, 22-37 are rejected under 35 U.S.C. 103(a) as obvious over Yokota, WO 01/768884 A1, (Equivalent US Patent No. 6,746,718 has been used as the translation) in view of Kustermann, US Patent No. 6,146,690 or Suga et al. or Clarke et al., with or without Mitami et al., cited above.

Yokota teaches a method of making a coated substrate by coating said substrate using a free flowing curtain coater, column 2, lines 20-30 and column 17, lines 17-40. The curtain can be multilayered, see column 17, lines 15-40, forming a composite multilayer curtain. In column 17, lines 30-40, Yokota teaches that the curtain can be formed with three layers and that the layers can contain at least one pigment, that could be talc, calcium carbonate, kaolin, etc., see column 13, lines 15-30. Yokota teaches also the use of polyvinyl alcohol as a binder, see, column 12, lines 40-55. Yokota is silent with respect to the solid content of the coating or the speed of the web at the coating operation. However, Kustermann teaches that it is known in curtain coating to provide solids content between 5 to 80%, preferably between 30 to 75%, see column 2, lines 50-60 and that the web speed can be greater than 600 m/min, preferably greater than 1000 m/min. Moreover, Mitami et al. teach a curtain coater that can be used with coating liquids at any viscosity and solid content, i.e., solid matter, and can be operated at web speed over 2000 m/min, see column 6, lines 25-51. The advantages of using such device, coater, are taught in column 3, line 55 through column 4, line 56, some of which are:

minimize the quality defects due to inferior drying, web tearing, and contamination of a coating apparatus, etc. Also the coating can be done at high speed, see column 6, lines 47-51. Therefore, the use of the claimed solid content would have been obvious to one of ordinary skill in the art since it is conventional, see Kustermann, and the velocity of the web as claimed would have been obvious to one of ordinary skill in the art, since he/she would have reasonable expectation of success if the coating process is carried out at the claimed speed in view of the teachings of Kustermann and/or Yokota. Note that using the coating apparatus taught by Mitami et al. in the process taught by Yokota would have been obvious to one of ordinary skill in the art in order to obtain the advantages discussed above, i.e., improvement of the coating operation with the advantage of running at high speed, can be used with any liquid coating independently of the viscosity and solid content.

As to the viscosity of the coating slip, as explained above, both Suga et al. and Clarke et al. teach that for multilayer curtain coatings, the viscosity of the coating composition should be high at high shear rates in order to eliminate/reduce air entrapment and puddling, Clarke et al., column 3, lines 41-50 and 60-67 and to eliminate sagging, heeling and air entrapment, Suga et al., column 2, lines 10-26, when the curtain coating is operated at high speeds. Note that both Suga et al. and Clarke et al. teach viscosity at high shear rates above 50 cps, ($50 \text{ mPa}\cdot\text{s}^{-1}$). Therefore, adjusting the viscosity to the claimed levels, i.e., using thickening, gelling agents, etc., would have been obvious to one of ordinary skill in the art in order to operate the coating process at high speeds while reducing sagging, air entrapment, heeling, and puddling. Note also that applicants admits

Art Unit: 1731

that in general the viscosity of coating slips at high shear rate is usually greater than 50 mPa.s⁻¹, see paragraph bridging pages 3 and 4.

Response to Arguments

8. Applicant's arguments with respect to claims 1-20 and 22-37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

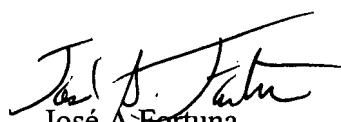
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure in the art of "Free flow curtain coating."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José A. Fortuna whose telephone number is 571-272-1188. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



José A. Fortuna
Primary Examiner
Art Unit 1731

JAF